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clarion Service Manual

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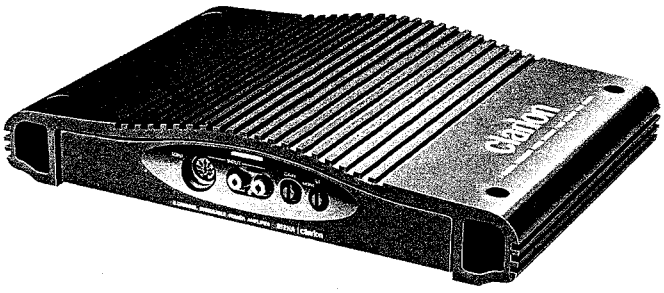


80 W (PEAK) × 2 CHANNEL BRIDGEABLE POWER AMPLIFIER

Model 812HA (EE-766A)

■ SPECIFICATIONS:

Circuit System:	High Stability Pulse Width Modulated DC to DC Switching Mode Power Supply + 2 Power units Parallel push-pull complementary circuit.
Rated Power:	45 W×2 (1 kHz, 0.1% 4 Ω)
Max. Power:	80 W (PEAK)×2
Frequency Response:	4 Hz to 100 kHz (−1 dB)
Speaker Impedance:	4 Ω × 2
Rated Voltage:	14.4 V (10.8 to 15.6 V) with negative ground
Current Consumption:	17 A (at rated power)
Dimensions:	302 mm (W), 55.5 mm (H), 200 mm (D)
Weight:	3.0 kg

■ FEATURES:

- Maximum Power Output 80 W (PEAK)×2
- EIAJ MAX. Power Output 50 W × 2 (at 1 kHz, 10% THD)
- Continuous Power Output 74 W (37 W×2, into 4 Ω, 20 Hz to 20 kHz, at 0.1% THD)
- Bridgeable for 2-channel or Monaural Mode Operation
- High Stability Pulse Width Modulated DC to DC Switching Mode Power Supply
- Ground-Loop Isolation Input Circuit
- 4 Ω Load Capability
- Adjustable Input Level Control
- Overvoltage Protection Circuit
- Speaker Lead Short Protection Circuit
- Turn-on Muting Circuit (Soft Start)
- Low AM Radio Frequency Interference

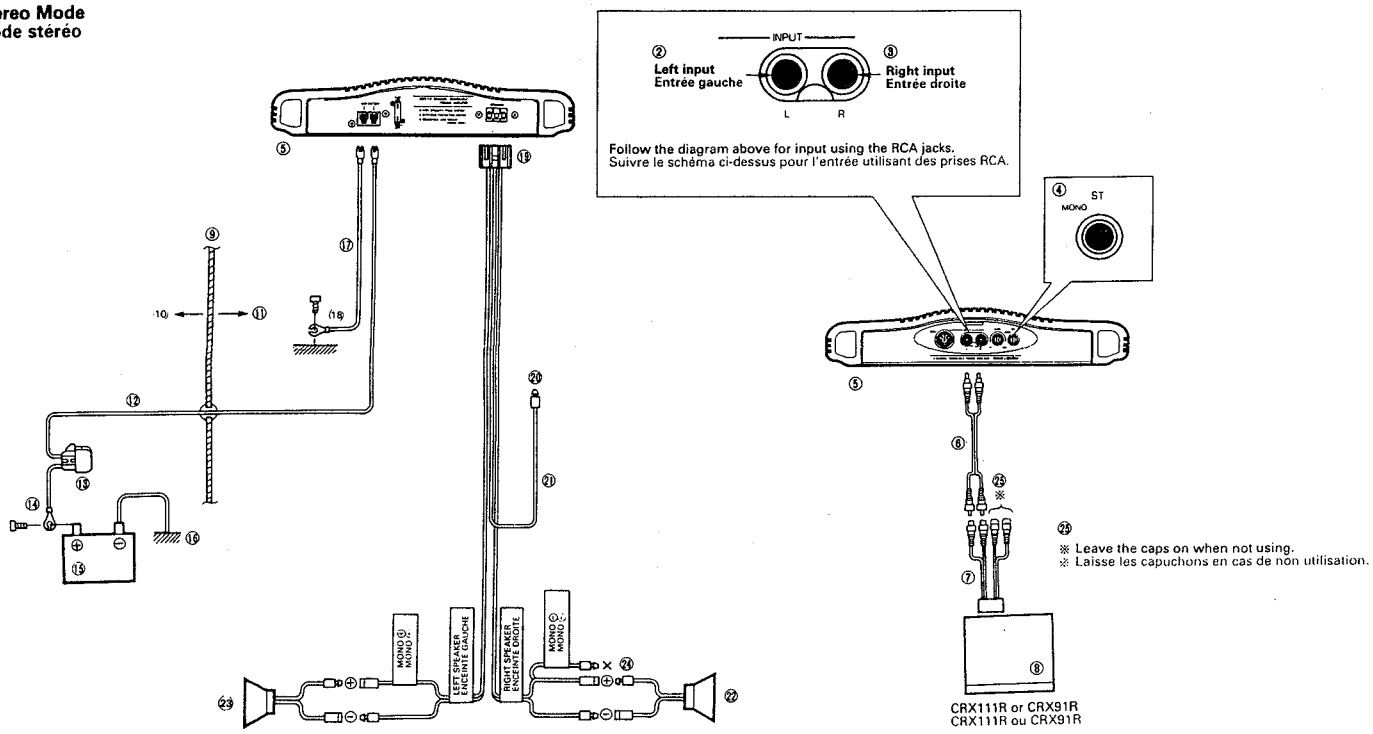
■ COMPONENTS:

- 812HA (EE-766A-01)

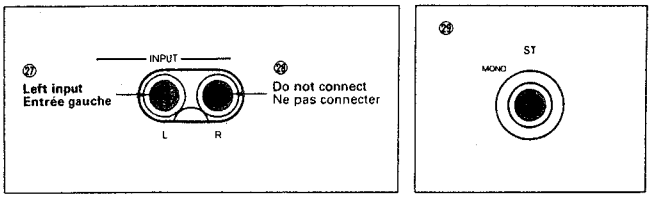
Main unit		1
Serial label	653-0086-02	1
Connector ass'y	653-0139-72	1
Power cord (GND)	653-0144-26	1
Power cord (+B)	653-0178-08	1
ISO converter lead	854-1713-00	1
A-lead (BLU/WHT)	850-2542-00	1
Owners guide	653-0178-01	1
Parts bag	653-0139-71	1
Clamper	335-0833-01	4
Tapping screw	700-5030-19	4
Plate nut	725-0181-00	4

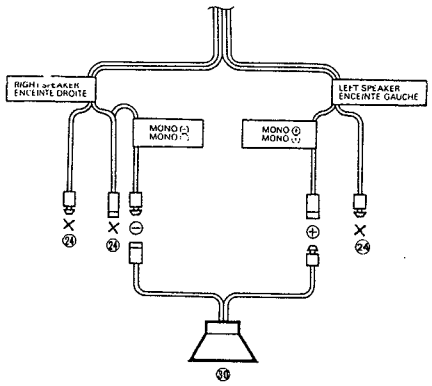
■ WIRE CONNECTION:

①
■ **Stereo Mode**
■ **Mode stéréo**


INPUT
② Left input
Entrée gauche
③ Right input
Entrée droite
L R
Follow the diagram above for input using the RCA jacks.
Suivre le schéma ci-dessus pour l'entrée utilisant des prises RCA.
④ ST
MONO
CRX111R or CRX91R
CRX111R ou CRX91R
※ Leave the caps on when not using.
※ Laisse les capuchons en cas de non utilisation.
LEFT SPEAKER ENCEINTE GAUCHE
RIGHT SPEAKER ENCEINTE DROITE
MONO ⊖ MONO
MONO ⊕ MONO

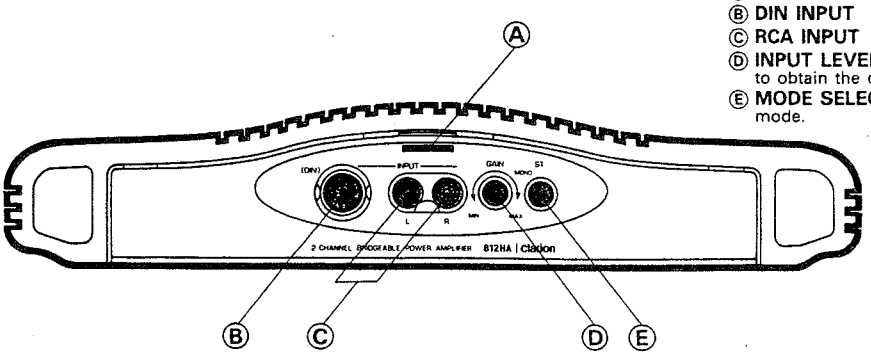
㉖
■ **Monaural Mode**
■ **Mode monaural**





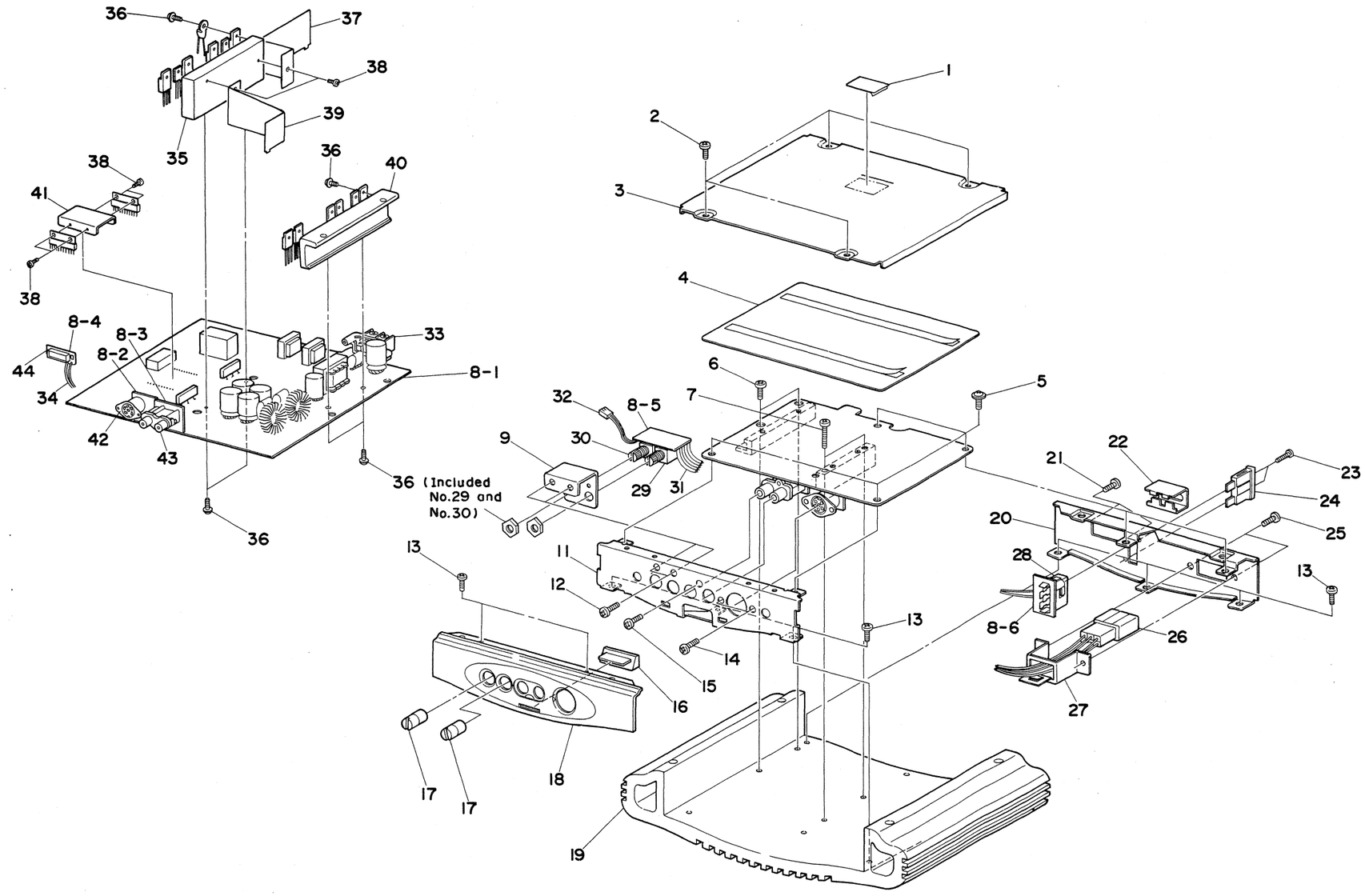
① ■ **Stereo Mode**
② **RCA input jack** (Left input)
③ **RCA input jack** (Right input)
④ **MODE Selector**
The mode selector must be switched to the ST mode (stereo).
⑤ **2-channel Bridgeable Power Amplifier 812HA**
⑥ **RCA patch cable (sold separately)**
⑦ **ISO 10-pin - RCA convertor cord (included)**
⑧ **Model with Line Out or CRX111R or CRX91R**
⑨ Dashboard (metal sheet)
⑩ Engine side
⑪ Internal side
⑫ Red wire
⑬ **Fuse (30 A)**
⑭ Main Power Supply
⑮ **12 V Battery**
⑯ **Car Ground**
⑰ Black Wire
⑱ **Ground ⊖** (Connect to vehicle's metal chassis)
⑲ **5-pin Connector**
⑳ **Amplifier control lead**
The amplifier control lead is used when using the RCA input jacks for the input. Connect it to the head unit's remote control lead or the auto antenna lead (the lead to which +12 V is output when the head unit's power is turned on). Refer to the above diagram for connection of the amplifier control lead to the CRX111R or CRX91R.
㉑ Blue/White wire
㉒ **Right Speaker**
㉓ **Left Speaker**
㉔ Do not connect.
㉕ Leave the caps on when not using.
㉖ ■ **Monaural Mode**
㉗ **RCA input jack** (Left input)
㉘ Do not connect.
㉙ **Mode Selector**
The mode selector must be switched to MONO mode.
㉚ **Speaker**

■ OPERATION:



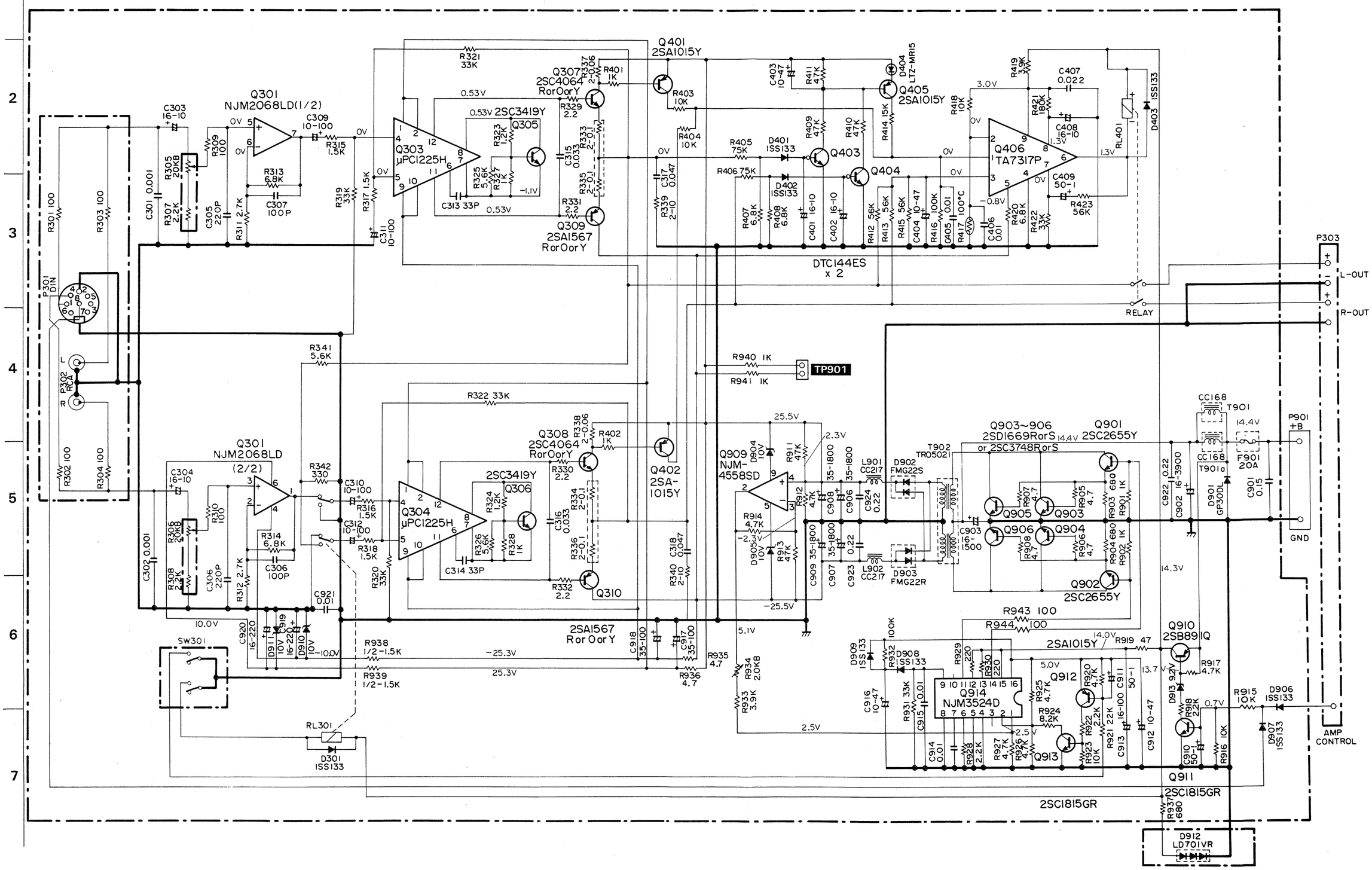
Ⓐ **POWER INDICATOR**
Ⓑ **DIN INPUT**
Ⓒ **RCA INPUT**
Ⓓ **INPUT LEVEL CONTROL:** Adjust the input level control to obtain the desired gain.
Ⓔ **MODE SELECTOR:** Set the mode selector to the desired mode.

■ EXPLODED VIEW · PARTS LIST:

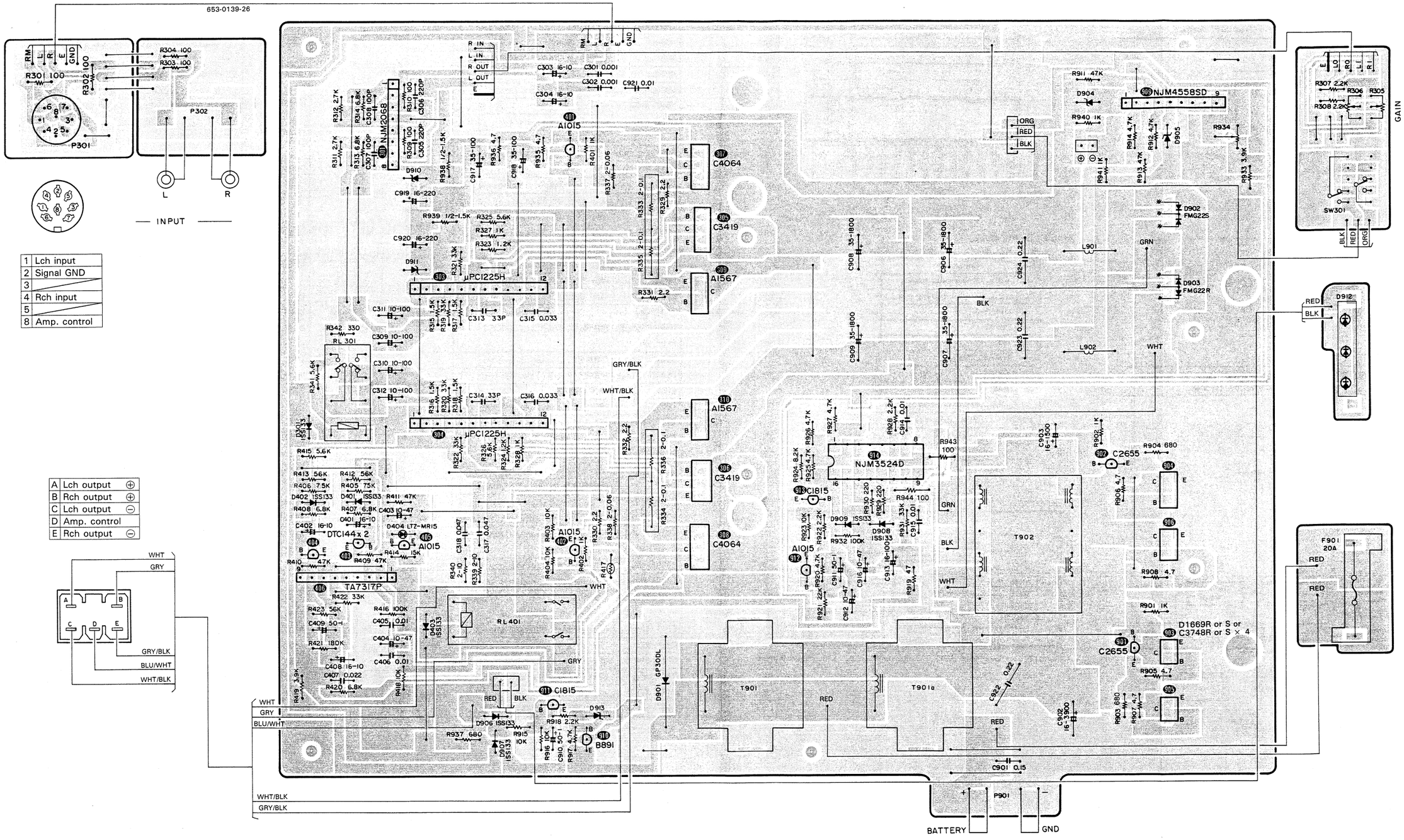


REF. NO.	PART NO.	DESCRIPTION	Q'TY
1	286-7378-00	Name plate	1
2	653-0139-02	B-tight 3×8	4
3	653-0144-15	Bottom cover	1
4	653-0178-02	Insulator	1
5	653-0178-05	B-tight 3×8	4
6	653-0178-03	B-tight 3×10	2
7	653-0139-06	B-tight 3×20	2
8	653-0178-06	P.W.B	1
9	653-0139-07	bracket	1
11	653-0139-12	Terminal bracket	1
12	714-3006-81	Screw 3×6	2
13	653-0086-05	B-tight 3×6	8
14	653-0086-19	Screw 2.6×5	2
15	653-0139-10	B-tight 2.6×8	1
16	653-0139-11	Reflector	1
17	653-0139-13	Knob	2
18	653-0178-04	Decoration plate(F)	1
19	653-0144-19	Heat sink	1
20	653-0144-20	Decoration plate(B)	1
21	653-0086-21	B-tight 3×8	2
22	653-0139-17	Terminal cover	1
23	653-0086-17	B-tight 2×6	2
24	060-0057-58	Fuse 20A	1
25	653-0144-21	Screw 3×6	2
26	653-0139-20	Connector 5P	1
27	653-0139-28	Connector bracket	1
28	653-0086-26	Fuse holder	1
29	653-0139-23	Variable resistor	1
30	653-0139-64	Switch	1
31	653-0139-26	Terminal PVC	1
32	653-0139-25	Socket ass'y 3P	1
33	653-0139-22	Terminal board	1
34	653-0139-27	Socket ass'y 2P	1
35	653-0144-22	Heat sink	1
36	735-3012-11	Tapping screw 3×12	16
37	653-0144-23	Shielded plate	1
38	714-3006-81	Screw 3×6	6
39	653-0139-82	Shielded plate	1
40	653-0144-24	Heat sink	1
41	653-0139-85	Heat sink	1
42	653-0178-07	DIN socket	1
43	653-0139-19	Pin jack	1
44	653-0139-45	LED LV701VR	1

■ CIRCUIT DIAGRAM:



■ PRINTED WIRING BOARD:

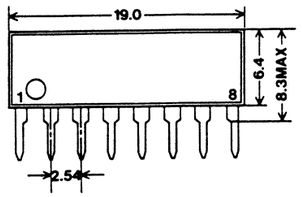


■ EXPLANATION OF IC's:

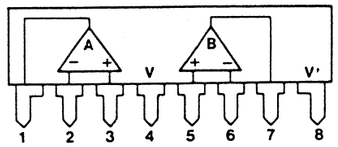
Refer to description in IC service manual vol. 2.
NJM3524D 051-0749-00 PWM Switching Regulator Controller

■NJM2068LD 653-0139-30 Dual OP. Amp.

Outward Form

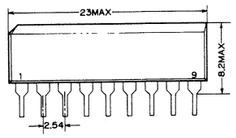


Block Diagram

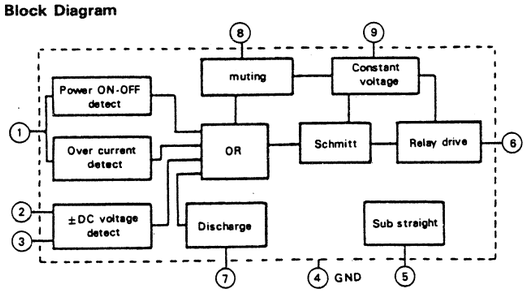


■TA7317P 051-0247-00 OCL Power Amp. & Speaker protection circuit

Outward Form



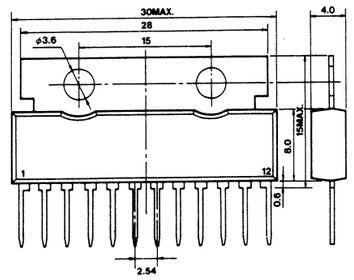
Block Diagram



■μPC1225H 653-0086-50 30~50W Power amp. driver

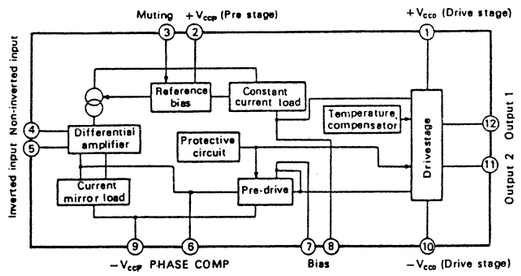
This IC is a stereo Hi-Fi power amplifier driver. It consists of a voltage amplifier circuit, pre-drive circuit, drive circuit, and protective circuit.

Outward Form



Terminal Description

No.	Description
1	$+V_{CCO}$ (Drive stage power)
2	$+V_{CCP}$ (Pre-drive stage power)
3	MUTING
4	INPUT
5	NFB
6	PHASE COMP
7	BIAS
8	BIAS
9	$-V_{CCP}$ (Pre-drive stage power)
10	$-V_{CCO}$ (Drive stage power)
11	LOWER OUTPUT
12	UPPER OUTPUT



■ ADJUSTMENTS:

POWER SUPPLY VOLTAGE:
Before making adjustments, preheat under the following conditions:
Voltage : 14.4 V ± 0.5 V
Input signal : No signal
ST/MONO : ST
Adjust R934 so that the voltage of TP901 is 51 V ± 0.2 V.

■ PARTS LIST:

◎ MAIN P.W.B SECTION
◎ Electrical section

REF.NO.	PART NO.	DESCRIPTION	Q'TY
Q301	653-0139-30	IC NJM2068LD	1
Q303.304	653-0086-50	IC μPC1225H	2
Q406	051-0247-00	IC TA7317P	1
Q909	653-0081-16	IC NJM4558SD	1
Q914	051-0749-00	IC NJM3524D	1
Q305.306	102-3419-00	Transistor 2SC3419Y	2
Q307.308	653-0139-35	Transistor 2SC4064R	4
Q309.310	653-0139-88	Transistor 2SC4064O	
	653-0144-01	Transistor 2SC4064Y	
Q401.402.405 Q912	100-1015-25	Transistor 2SA1015Y	4
Q403.404	125-2007-03	Transistor DTC144ES	2
Q901.902	102-2655-25	Transistor 2SC2655Y	2
	653-0144-03	Transistor 2SC3748R	4
Q903.904	653-0144-33	Transistor 2SC3748S	
Q905.906	653-0087-11	Transistor 2SD1669R	
	653-0144-04	Transistor 2SD1669S	
Q910	653-0139-37	Transistor 2SB891Q	1
Q911.913	102-1815-51	Transistor 2SC1815GR	2
D301.401.402 D403.906.907 D908.909	001-0294-00	Diode 1SS133	8
D404	001-0366-00	LED LTZ-MR15	1
D901	653-0139-40	Diode GP30DL	1
D902	653-0087-12	Diode FMG-22S	1
D903	653-0087-13	Diode FMG-22R	1
D904.905.910 D911	653-0139-44	Diode MTZ-10C	4
D913	653-0144-30	Diode MTZ-082C	1
T901.901a	653-0144-05	Choke coil	2
T902	653-0144-06	DC-DC conveter	1
L901.902	653-0139-47	Choke coil	2
C301.302	173-1021-10	Polyester capacitor 50V0.001μF	2
C303.304.401 C402.408	179-1063-32	Electrolytic capacitor 16V10μF	5
C305.306	160-2212-05	Ceramic capacitor 220PF BK	2
C307.308	160-1012-05	Ceramic capacitor 100PF BK	2
C309.310.311 C312	179-1073-22	Electrolytic capacitor 10V100μF	4
C313.314	174-3300-43	Ceramic capacitor 50V33PF SLJ	2
C315.316	173-3331-10	Polyester capacitor 50V0.033μF	2
C317.318	173-4731-10	Polyester capacitor 50V0.047μF	2
C403.404.912	179-4763-22	Electrolytic capacitor 10V47μF	3
C405.406	160-1035-06	Ceramic capacitor 50V0.01μF Z	2
C407	160-2235-06	Ceramic capacitor 50V0.022μF Z	1

(NOTE) When changing transistors, please use the same quality-level ones.

REF.NO.	PART NO.	DESCRIPTION	Q'TY
C409.910.911	179-1053-62	Electrolytic capacitor 50V1μF	3
C901	173-1541-10	Polyester capacitor 50V0.15μF	1
C902	653-0139-48	Electrolytic capacitor 16V3900μF	1
C903	653-0144-07	Electrolytic capacitor 16V1500μF	1
C906.907.908 C909	653-0139-50	Electrolytic capacitor 35V1800μF	4
C913	179-1073-32	Electrolytic capacitor 16V100μF	1
C914.915.921	173-1031-10	Polyester capacitor 50V0.01μF	3
C916	179-4763-22	Electrolytic capacitor 10V47μF	1
C917.918	179-1073-52	Electrolytic capacitor 35V100μF	2
C919.920	179-2273-32	Electrolytic capacitor 16V220μF	2
C922.923.924	653-0139-51	Polypropylene capacitor 100V0.22μF	3
R311.312	653-0144-08	Film resistor 2.7KΩ	2
R313.314	653-0139-54	Film resistor 6.8KΩ	2
R315.316.317 R318	653-0139-53	Film resistor 1.5KΩ	4
R319.320.321 R322	653-0139-55	Film resistor 33KΩ	4
R333.334 R335.336	653-0144-09	Cement resistor 2W-0.1Ω	2
R337.338	653-0144-10	Wirewound resistor 2W-0.06Ω	2
R339.340	653-0139-58	Film resistor 2W-10Ω	2
R417	653-0139-59	Posistor	1
R934	653-0086-65	Variable resistor 2KΩB	1
R938.939	653-0139-60	Film resistor 1/2W-1.5KΩ	2
RL401.402	653-0086-66	Relay	2
RL301	653-0139-65	Relay	1
P303	653-0139-20	Connector 5P	1
P901	653-0139-22	Terminal board	1
BP1	654-0136-22	Base post 3P	1
BP2.3	654-0136-21	Base post 2P	2
R305.306	653-0139-23	Variable resistor	2
SW301	653-0139-64	Switch	1
R301.302.303 R304.309.310	653-0139-52	Film resistor 100Ω	6
P301	653-0178-07	DIN socket	1
P302	653-0139-19	Pin jack	1
F901	653-0086-26	Fuse holder	1
D912	653-0139-45	LED LV701VR	1

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